

Introduction to Lean

**ANGELA SANDOVAL, P.E., CERTIFIED LEAN SIX
SIGMA GREEN BELT**

What Is Lean?

Lean is a set of principles and methods for identifying and eliminating waste (non-value added activity) in any process.

Why Do We Need Lean?

All Processes can benefit from Evaluation and have room for Improvement

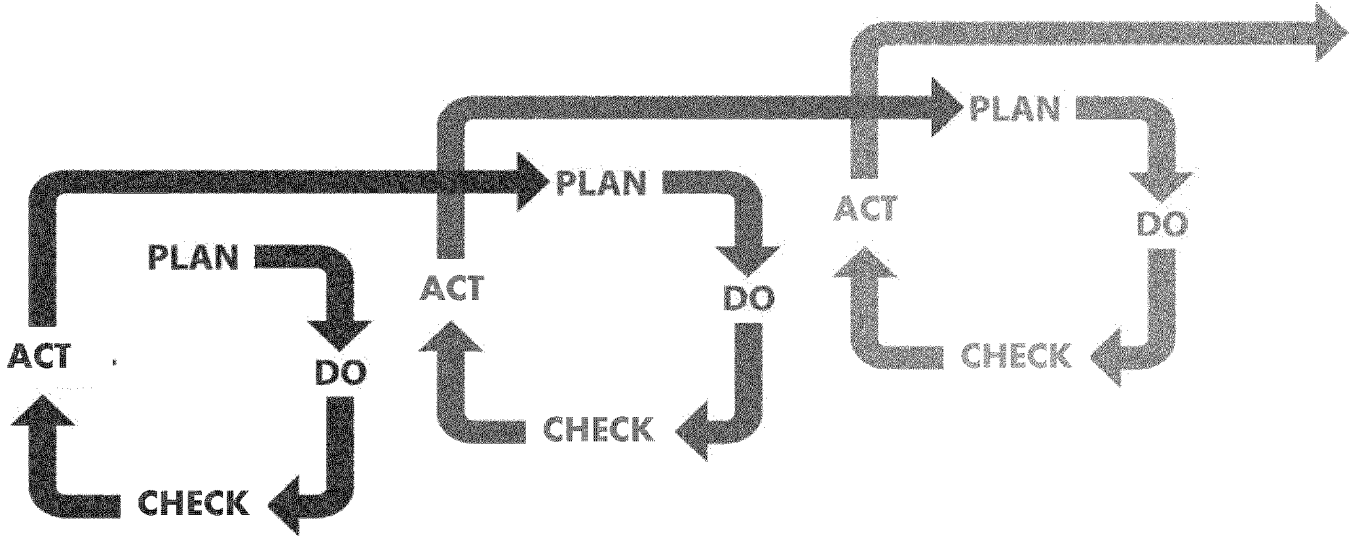
- Reduced process complexity
- Reduced rework
- Staff ownership/empowerment
- High quality products

What Makes Lean Different?

Emphasis on:

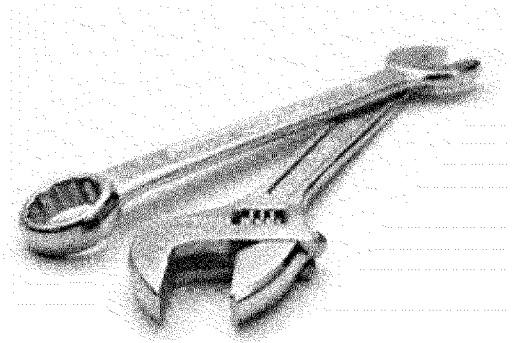
- Workforce empowerment
- Rapid, real-time change
- *Doing* over planning
- Building and sustaining momentum
- Tracking progress

How Does Lean Work?



Concepts & Tools

- Value added vs. non-value added
- Process wastes (DOWNTIME)
- 5 Whys
- Process Mapping
- Kaizen Event
- 5S



Forms of Waste = DOWNTIME



♦ When you have **DOWNTIME** you encounter one of the 8 forms of Waste.

- ♦ **D** – Defects
- ♦ **O** – Over Producing
- ♦ **W** – Waiting
- ♦ **N** – No Injuries
- ♦ **T** – Transportation
- ♦ **I** – Inventory
- ♦ **M** – Motion
- ♦ **E** – Excessive Processing



Value Added vs. Non-Value Added

Value Added

- Task or action customer would be willing to pay for
- Transforms a product or service in form, fit, and/or function
- Done correctly the first time

Non-Value Added

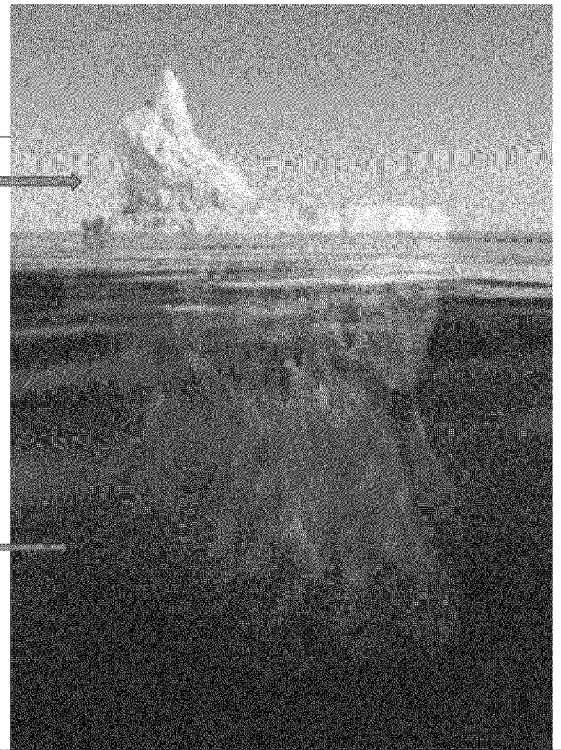
- Consumes resources without directly creating value
- Requires more time, effort, or resource than it has to
- Can be removed to focus on value-added steps

Third category: **Necessary**, although the step may not add value from the customer's perspective

Problem Solving

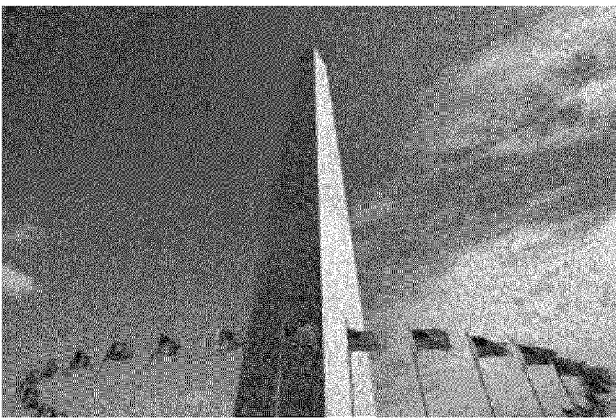
Symptoms: You see it, people talk about it; it is visible!

Root Cause: The one to address. It is often hidden. You need to find it!



Defining the “**wrong**” problem wastes considerable time looking in the **wrong** direction for a solution.

5 Whys



Problem Statement: The Washington Monument is disintegrating.

Solution/Root Cause: Turn lights on at a later time. ←

Why 1: Why is the Washington monument disintegrating?

Use of harsh chemicals.



Why 2: Why use harsh chemicals?

To clean pigeon poop.



Why 3: Why so many pigeons?

They eat spiders and there are a lot of spiders at the monument.



Why 4: Why so many spiders?

They eat gnats and there are lots of gnats at the monument.

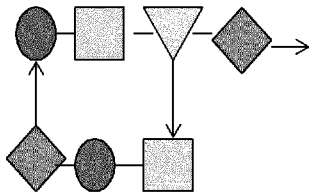


Why 5: Why so many gnats?

They are attracted to the light at dusk.

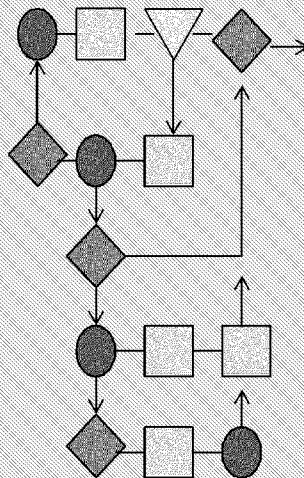
Mapping the Process

What we think
the process looks
like....

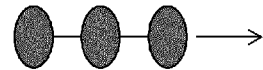


Mapping the process means we get to see *what actually happens*, not just what is written on paper.

**What it
actually looks
like....**



What we
would like it
to look like....



What Is a Kaizen Event?

- 3-5 day event with cross-functional team
- Requires strong leader commitment and experienced facilitator
- Team receives training on Lean methods before and during event
- Map the current process
- Identify waste
- Identify improvement opportunities
- Map a new, improved process
- Create implementation plan



Kaizen is a Japanese term meaning “to take apart and make good.” It’s a facilitated, team-driven rapid improvement event.

How to Select a Lean Project?

CRITERIA

- Manageable in scope
- Addresses an important process
- Clear improvement needs
- Supportive management

Signs of Inefficient Processes

- Backlogs and process bottlenecks
- People are working hard, but not much seems to be getting done
- Things aren't done in time; schedules slip
- Lots of handoffs and reviews
- Rework/redo loops
- Processes are unnecessarily complex; involve excess steps
- Internal or external customers complain about the process

Questions or comments?
